

INVITATION FOR BIDS (IFB) NO. 10-0367
TO
FURNISH, DELIVER, AND INSTALL
ACCURATE MASS QUADRUPOLE TIME-OF-FLIGHT (QTOF) LC-MS SYSTEM
AND
TRIPLE QUADRUPOLE GC-MS SYSTEM
FOR THE
COLLEGE OF PHARMACY
UNIVERSITY OF HAWAII AT HILO
HILO, HAWAII

MAY, 2010

BOARD OF REGENTS
UNIVERSITY OF HAWAII
HONOLULU, HAWAII

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IT IS THE RESPONSIBILITY OF ALL BIDDERS TO CHECK THE TABLE OF CONTENTS TO CONFIRM THAT ALL PAGES LISTED THEREIN ARE CONTAINED IN THEIR BID PACKAGE.

NOTICE TO BIDDERS

BID FORMS for IFB No. 10-0367, Accurate Mass Quadrupole Time-of-Flight (QTOF) LC-MS System and Triple Quadrupole GC-MS System for the College of Pharmacy, University of Hawaii at Hilo, will be available from and received in the OFFICE OF PROCUREMENT AND REAL PROPERTY MANAGEMENT, UNIVERSITY OF HAWAII, 1400 LOWER CAMPUS ROAD, ROOM 15, HONOLULU, HAWAII 96822, and must be submitted no later than **2:30 p.m., May 25, 2010**, and at that time will be publicly opened.

Bids received after the time and date fixed for opening will not be considered.

Vendors located outside the Island of Oahu, Hawaii, USA, may request a copy of the IFB to be sent via U.S. Postal Service by providing the vendor's name, address, contact person and telephone number. If express shipment is desired, requests must be submitted in writing with an account number, BILLABLE TO THE RECEIVER, and an authorized signature. Requests may be transmitted via facsimile, (808) 956-2093. Direct all questions to Kurt Minato, (808) 956-7159.

M.R.C. Greenwood
President, University of Hawaii

Posting Date: May 5, 2010

Vendors downloading the IFB shall be responsible for notifying the Procurement Specialist Kurt Minato (e-mail: minato@hawaii.edu; fax: [808] 956-2093), so that the name, address, phone number, fax number, and e-mail address of the vendor can be listed on the University's register for the purpose of notification of any amendments to the IFB which are issued.

NOTICE TO BIDDERS

BUSINESS CLASSIFICATION CERTIFICATION STATEMENT

Vendors: Please complete the following information below. If you answer "No" to question No. 1, complete the certification portion and submit together with your bid document or quote.

(Terms used are taken from the Small Business Administration Rules and Regulations and the Federal Acquisition Regulation [FAR].) (Reference Section A on the reverse side of this form for Category Descriptions.)

This is to certify that the company identified below:

1. _____ IS a **small business** as defined in the Small Business Administration regulations.
(see reverse for size standards).
_____ IS **NOT** a small business as defined in the regulations.
(If you checked here, **STOP, GO TO CERTIFICATION BELOW.**)
2. _____ IS a **small disadvantaged business concern** and is identified, on the date of its representation, as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-NET).
3. _____ IS a **women-owned small business concern** of which at least 51% is owned, controlled, and managed by one or more women; or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women.
4. _____ IS a **HUBZone small business concern** that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.
5. _____ IS a **veteran-owned small business concern** of which not less than 51 percent is owned, controlled and managed by one or more veterans; or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more veterans.
6. _____ IS a **service-disabled veteran-owned small business concern** of which not less than 51 percent is owned, controlled and managed by one or more service-disabled veterans, or in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans as defined in 38 U.S.C. 101 (16).

CERTIFICATION:

I hereby certify the information supplied herein to be true and correct.

Company Name: _____

Signature of Company Officer

Type of Goods/Services: _____

*NAICS Code: _____

Company Address: _____

Print Name: _____

Title: _____

Date: _____

Any misrepresentation shall be subject to the provisions stated in item B on the reverse side.

* North American Industry Classification System (NAICS)

- A. "SMALL BUSINESS" SIZE STANDARDS FOR FEDERAL SUB-CONTRACTORS. Small business size is determined by the primary NAICS Code. See Title 13 CFR, Part 121 to determine your NAICS Code and the threshold for determining small business (revised as of January 1, 2004).

A "small business" is a concern including its affiliates, which is independently owned and operated. It is not dominant in the field of operations in which it is selling goods and services to a federal contractor. It meets the following size criteria for its particular industry:

1. CONSTRUCTION TRADES - "Small" if average annual receipts for preceding 3 years do not exceed \$12 million.
2. CONSTRUCTION, GENERAL CONTRACTORS - "Small" if average annual receipts for preceding 3 years do not exceed \$28.5 million.
3. MANUFACTURING - "Small" if 500 employees or less, except for some specific products which will increase the complement of employees to 750 and 1,000, respectively.
4. TRANSPORTATION - "Small" if average annual receipts for preceding 3 years do not exceed the amount shown for specific services:

\$21.5 million – general freight trucking, local.
\$3 million – travel agencies.
5. WHOLESALE TRADE, DURABLE AND NON-DURABLE GOODS - "Small" if 100 employees or less.
6. RETAIL TRADE - "Small" if average annual receipts for preceding 3 years do not exceed the amount shown for specific products:

\$6 million - lumber and building materials, paints, hardware.
7. SERVICES - "Small" if average annual receipts for preceding 3 years do not exceed the amount shown for specific services:
 - a. \$21 million – computer systems design services, custom computer programming services.
 - b. \$10.5 million - refuse collection, protective guard services.
 - c. \$14 million - janitorial services.
 - d. \$21.5 million - passenger car rental
 - e. \$21 million – office Machinery and equipment rental & leasing
 - f. \$6 million - general automobile repair, refrigeration & air conditioning.
8. ALL OTHER TYPES OF BUSINESS - "Small" if 500 employees or less.

Where firm sizes are determined by annual receipts, and the concern is less than 3 complete fiscal years old, its total receipts means for the period it has been in business, divided by the number of weeks, including fractions of a week, and multiplied by 52.

- B. Notice. Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, small disadvantaged or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to sections 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall:

1. Be punished by imposition of fine, imprisonment, or both;
2. Be subject to administrative remedies including suspension and debarment; and
3. Be ineligible for participation in a program conducted under the authority of the Act.

BID FORM
TO
FURNISH, DELIVER, AND INSTALL
ACCURATE MASS QUADRUPOLE TIME-OF-FLIGHT (QTOF) LC-MS SYSTEM
AND TRIPLE QUADRUPOLE GC-MS SYSTEM

Office of Procurement and
Real Property Management
University of Hawaii
1400 Lower Campus Road, Room 15
Honolulu, Hawaii 96822

To Whom It May Concern:

The undersigned has carefully examined the INVITATION FOR BIDS (IFB) NO. 10 0367, TO FURNISH, DELIVER, AND INSTALL ACCURATE MASS (QTOF) LC-MS SYSTEM AND TRIPLE QUADRUPOLE GC-MS SYSTEM FOR THE COLLEGE OF PHARMACY, UNIVERSITY OF HAWAII AT HILO, HILO, HAWAII, and offers to furnish, deliver, and install the equipment for the University of Hawaii at Hilo, College of Pharmacy, 200 W. Kawili Street, Hilo, Hawaii 96720, in strict accordance with the true intent and meaning of the Invitation for Bids (IFB) and shall complete delivery and installation within NINETY (90) consecutive calendar days from the date designated in the Notice to Proceed as follows:

BASIC BID

<u>Item No.</u>	<u>Description</u>	<u>Qty.</u>	<u>Total Amount</u>
1	ACCURATE MASS QUADRUPOLE TIME-OF-FLIGHT (QTOF) LC-MS SYSTEM OR APPROVED SUBSTITUTION, per the Technical Specifications.	1	\$_____

SUBSTITUTIONS TO BE APPROVED IN ADVANCE

Manufacturer and Model No. Offered

<u>Item No.</u>	<u>Description</u>	<u>Qty.</u>	<u>Total Amount</u>
2	TRIPLE QUADRUPOLE GC-MS SYSTEM OR APPROVED SUBSTITUTION, per the Technical Specifications.	1	\$ _____

SUBSTITUTIONS TO BE APPROVED IN ADVANCE

Manufacturer and Model No. Offered

TOTAL AGGREGATE BID (ITEM NOS. 1 - 2) \$ _____

Prices shall be f.o.b. destination, including all labor, equipment and installation costs, transportation and delivery charges to F.O.B. destination, insurance premiums, warranty costs, administrative support costs, expediting fees and all applicable taxes.

ADDITIONAL QUOTATIONS

It is understood and agreed that the following additional quotations shall be used at the option of the University, at the time of award, and shall be added to the corresponding item, as follows:

1. Extended **Two (2)-Year** Warranty Service beyond standard ONE (1)-year warranty period for **ITEM NO. 1.** \$ _____
2. Extended **Two (2)-Year** Warranty Service beyond standard ONE (1)-year warranty period for **ITEM NO. 2.** \$ _____

TAX LIABILITY

Both out-of-state and Hawaii bidders are advised that the amount bid on this solicitation is subject to the general excise tax imposed by Chapter 237, Hawaii Revised Statutes (HRS) and, if tangible property is being imported into the State of Hawaii for resale, the use tax (currently 1/2%) imposed by Chapter 238, HRS. (Refer to Taxes in the General Provisions.) Bidders are therefore cautioned to consider such taxes in formulating their bids since no adjustments to the prices bid shall be allowed.

BASIS FOR AWARD

The award of contract, if awarded, shall be made to the lowest responsive and responsible bidder on the **TOTAL AGGREGATE BID (ITEM NOS. 1 – 2)**.

NOTE TO BIDDERS

An acceptable bid must conform in all material respects to this Invitation for Bids. Any of the following may be grounds for disqualification:

1. Taking exception to any of the specifications, terms or conditions contained in the IFB.
2. Placing conditions on the furnishing of solicited goods or services.
3. Inclusion of a quotation or order form containing additional specifications, terms or conditions.
4. Referencing external documents containing additional specifications, terms or conditions.

Bidders are advised that bids are evaluated as submitted and requests by bidders to delete conditions contained in their bids after bid opening cannot be considered.

In the event that the undersigned is awarded this contract and its remittance address differs from the address shown on page BID - 6, please indicate remittance address below:

Street Address or P. O. Box

City State Zip Code

SUBSTITUTIONS TO BE APPROVED IN ADVANCE

The manufacturer and model number are used as a measure of quality, style, appearance, and performance. All equipment must be new and unused. Used or refurbished equipment will not be considered.

Any brand or manufacture of equal or better quality to that specified will be considered for acceptance by the University upon submission of a written request for approval of the proposed substitution with manufacturer's literature or brochures containing technical data on the proposed items being offered.

Proposals for substitution shall not be submitted unless the bidder has the proposed substitution item available for inspection by the University. Any requests for substitution of items shall be made no later than **4:30 p.m., May 12, 2010** to permit inspection by the University.

The written request shall be submitted in the attached sample format, "Request for Substitution".

The statement of variances must list all features of the proposed substitution which differ from the specifications and/or product specified and must further certify that the substitute has no other variant features.

Bidders shall send requests to Tammy M. Tanaka, University of Hawaii at Hilo, College of Pharmacy, 200 West Kawili Street, Hilo, Hawaii 96720. The package or envelope containing the request for substitution shall be marked:

Request for Substitution for:

IFB No. 10-0367, To Furnish, Deliver and Install Accurate Mass Quadrupole Time-of-Flight (QTOF) LC-MS System and Triple Quadrupole GC-MS System for the for College of Pharmacy, University of Hawaii at Hilo
Deadline: 4:30 p.m., **May 12, 2010.**

The University may at its discretion reject or deny any substitution that it deems unequal, and the findings in this regard shall be accepted by the bidders as final and binding.

A bid which includes a substitution shall be considered only if the substitution has been approved in advance by the University.

SAMPLE

Date: _____

Tammy M. Tanaka
College of Pharmacy
University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720

To Whom It May Concern:

Subject: REQUEST FOR SUBSTITUTION

Project Title: _____

In accordance with the "SUBSTITUTIONS TO BE APPROVED IN ADVANCE" clause of the BID section, I hereby submit for substitution TWO (2) set(s) of technical brochures and statement of variances for your review and approval for the item(s) shown below:

<u>ITEM</u>	<u>SPECIFIED BRAND</u>	<u>SUBSTITUTE OR ALTERNATE BRAND</u>	<u>VARIANT FEATURE</u>
-------------	----------------------------	------------------------------------------	----------------------------

I further certify that my request for substitution of the above item(s) has no other variant features.

Signature

Title

NOTE:

- 1. PLEASE USE OWN LETTERHEAD.**
- 2. IF NO VARIANT FEATURE, INDICATE "NONE".**

(IF BY INDIVIDUAL)

SOCIAL SECURITY NUMBER

FEDERAL TAXPAYER
IDENTIFICATION NUMBER

NAME (Signature)

TYPED NAME

D.B.A.

ADDRESS

CITY

STATE

ZIP CODE

TELEPHONE NUMBER

FAX NUMBER

(IF BY PARTNERSHIP)

FEDERAL TAXPAYER
IDENTIFICATION NUMBER

OFFICIAL/LEGAL NAME OF FIRM

NAME (Signature)

TYPED NAME

PARTNER

ADDRESS

CITY

STATE

ZIP CODE

TELEPHONE NUMBER

FAX NUMBER

(IF BY CORPORATION)

FEDERAL TAXPAYER
IDENTIFICATION NUMBER

OFFICIAL/LEGAL NAME OF COMPANY

*OFFICER (Signature)

TYPED NAME

TITLE

ADDRESS OF COMPANY

CITY

STATE

ZIP CODE

TELEPHONE NUMBER

FAX NUMBER

(SEAL)

IF LICENSED OR INCORPORATED TO DO BUSINESS WITHIN THE STATE OF HAWAII AND SUBJECT TO THE PROVISIONS OF THE HAWAII GENERAL EXCISE TAX LAWS, INDICATE GENERAL EXCISE TAX LICENSE NUMBER _____.

*Please attach to this page evidence of the authority of this officer to submit a bid on behalf of the corporation, giving also, the address and names and addresses of the **other officers**.

NOTE: FILL IN ALL BLANK SPACES WITH INFORMATION ASKED FOR OR BID MAY BE INVALIDATED.

TECHNICAL SPECIFICATIONS

This section indicates the Technical Specifications for the equipment required. The Technical Specifications listed herein are the minimum requirements and are mandatory for an accepted bid.

SCOPE OF WORK

- A. Contractor shall be responsible for provision of all equipment and installation work as specified herein.
- B. Contractor shall provide on-site staff training at the time of installation covering the proper use and basic maintenance of equipment.
- C. Contractor shall coordinate all deliveries, installation work, training, service and invoicing with Project Coordinator.
- D. Contractor shall provide ONE(1)-year warranty coverage at no additional cost to the University.

REQUIRED COMPONENTS

Accurate Mass Quadrupole Time-Of-Flight (QTOF) LC-MS System, or approved substitution with the following specifications:

- 1. Agilent Technologies Model 6530 LC-MS System, or approved substitution.
 - a. Agilent 1200 series Rapid Resolution UHPLC system.
 - i. G1312B Binary Pump SL with solvent selection valve.
 - 1. Includes solvent cabinet, 2 solvent bottles, connecting capillaries and CAN cable.
 - ii. G1379B Micro-Vacuum 4 Channel Degasser.
 - 1. Includes remote control cable and connecting tubing.
 - iii. G1367D Autosampler SL+.
 - 1. Ultralow carryover design.
 - 2. 0.1 to 40 ul injection range.
 - 3. Includes tray for 2 well-plates and 10 x 2 ml vials.
 - 4. Includes 2 plates for 54 x 2 ml vials.
 - 5. Includes Rheodyne injection valve rated for 600 bar.

- iv. G1330B Autosampler Thermostat with Peltier cooling.
- v. G1316B Thermostatted Column Compartment SL.
 - 1. Includes 6 port valve.
 - 2. Includes low dispersion capillary heat exchanger kit.
 - 3. Temperature range ambient to 100°C.
 - 4. Pressure limit of 600 bar.
- vi. G1315C Diode Array Detector SL.
 - 1. includes LAN on board.
 - 2. includes micro flow cell.
 - 3. Provides 80 Hz data acquisition rate.
 - 4. Includes 128 MB compact flash memory card for data recovery.
- vii. 5067-1565 Solvent Mixer, short, 200 ul.
- b. Agilent G6530AA Accurate Mass QTOF LC-Mass Spectrometer.
 - i. Shall include all gas generators, air compressors and vacuum systems required for installation and operation.
 - ii. G1947B LC-MS APCI source.
 - 1. Includes APCI spray chamber, corona discharge needle, nebulizer, APCI vaporizer and test calibration kit.
 - iii. G1948B LC-MS API electrospray source.
 - 1. Includes API-ES spray chamber, nebulizer, test calibration kit and tuning mixture.
 - iv. G3199B Quiet Cover II for LC-MS rough pump.
- c. Agilent LC-MS software including:
 - i. Includes Mass Hunter Workstation with CPU, monitor, printer and 2 data analysis software licenses.
 - ii. G3835AA Mass Profiler Professional.
 - iii. G2211AA Mass Hunter Metabolite ID Acquisition and Processing software (2 licenses).
 - iv. G6829AA Mass Hunter BioConfirm software.
 - v. G6825AA Personal METLIN metabolite database.
- 2. Shall include on-site installation, familiarization and training.
- 3. Shall include an on site LC/MS QTOF operations training course.

4. Shall include a minimum of 5 days of on site chemical analysis application consulting.
5. Shall meet or exceed the following performance specifications:
 - a. Shall be a benchtop quadrupole Time of Flight LC-mass spectrometer system.
 - b. Shall include dedicated electrospray (ESI) and atmospheric pressure chemical ionization (APCI) interfaces.
 - c. Additional ionization sources, including APPI, simultaneous ESI/APCI, HPLC-chip-MS and pulsed dynamic focusing MALDI shall be available.
 - d. Shall include thermal gradient focusing technology for enhanced sensitivity.
 - e. Shall include a built-in calibrant delivery system for automatic introduction of mass reference compounds to heated sources without the need for an additional syringe pump or isocratic pump.
 - f. The dedicated orthogonal ESI source shall use a dual sprayer system to introduce reference materials simultaneously with the analytical flow.
 - g. Shall provide real-time internal reference mass correction for MS and MS/MS operation.
 - h. Shall provide internal reference mass correction for heated sources.
 - i. Shall perform automated optimization of ion optics and full QTOF mass axis calibration.
 - j. Sensitivity in the MS mode (ESI on column, 1 pg reserpine injected, 400 ul/min flow, $(M+H)^+$ at m/z 609.2807) must afford a signal-to-noise ratio of 10:1 RMS or better.
 - k. Sensitivity in the MS/MS mode (ESI on column, 1 pg reserpine injected, 400 ul/min flow) signal-to noise ratio for the most intense product ions (m/z 174, 195, 397, 448) must be 50:1 RMS or better.
 - l. Mass resolution, measured at m/z 1522 after automatic tuning must be greater than 20,000 FWHM.
 - m. Mass resolution measured at m/z 118 after automatic tuning must be greater than 10,000 FWHM.
 - n. Mass accuracy in MS mode (ESI on column, 400 ul/min flow, 20 pg reserpine injected, measured at $(M+H)^+$ m/z 609.2807 shall be better than 2 PPM RMS as measured from 10 replicate injections.
 - o. Mass accuracy in MS/MS mode (ESI on column, 400 ul/min flow, 20 pg reserpine injected, measured at product ion at m/z 397 shall be better than 5 PPM RMS as measured from 10 replicate injections.
 - p. Must maintain a 2 PPM or better mass accuracy within a 2°C/hr drift over the range of $15\text{-}35^{\circ}\text{C}$.

- q. Must provide an in-scan dynamic range on co-eluting components of up to 5 decades, or better.
- r. Must have a mass range of m/z 25 – 20,000 or greater.
- s. Must provide a spectral acquisition rate in MS mode, scanning m/z 100-1700 while maintaining a resolution of 20,000 at m/z 1522, of 20 spectra/second or better.
- t. Must provide a spectral acquisition rate in MS/MS mode, scanning m/z 100-1700 while maintaining a resolution of 20,000 at m/z 1522, of 10 MS/MS spectra/second or better.
- u. Shall provide single point data system method capability with full control of HPLC and QTOF and communication between the two such that if either experiences a 'not ready' condition, error or leak, the system stops injecting sample.
- v. Shall support data-dependant modes of operation including: precursor selection based on intensity of n-highest, n-lowest, or relative or absolute threshold; excluded mass lists and preferred mass lists; dynamic selection of fragmentation energy; preferred charge state.
- w. Shall include data mining tools including extraction of compound specific spectral and chromatographic information (via a find compounds algorithm) and compound based browsing with dynamic links to spectra and chromatograms.
- x. Shall include molecular profiling tools including measurement of potentially relevant molecular features from one or more LC-MS analyses, differential expression analysis and selection of differential features for subsequent LC-MS identifications.
- y. The GCQQQ and LC-QTOF MS must both operate under the same software system.
- z. The HPLC system must support both a regular speed mode and an ultrafast mode.
- aa. All maintenance parts of the HPLC must be accessible from the front of the instrument.
- bb. The HPLC pumping module shall consist of two serial, dual-piston pumps of floating piston design, with variable stroke drive and active inlet valves.
- cc. The HPLC pumping module shall have a maximum flow rate of 5 ml/min and offer a composition range of 1-99% or 5ul/min per channel, whichever is greater.
- dd. The HPLC system must have an operational pressure range of 0-600 bar.
- ee. The HPLC system must include safe leak handling capabilities together with leak sensors.

- ff. The HPLC system shall support column RF-ID tags to record column characteristics and column utilization parameters with each data file.
- gg. The HPLC system must support alternating column regeneration.
- hh. The HPLC thermostatted column compartment shall have a temperature range from 10 degrees below ambient to 100°C, accurate to within 0.1°C, and stable to within +/-0.05°C.
- ii. The HPLC system must have post-column cooling capabilities.
- jj. The HPLC autosampler injection range shall be from 0.1 ul to 100 ul or better without hardware change with a precision not to exceed 0.25%.
- kk. The HPLC autosampler must be programmable for sample dilution and/or derivatization.
- ll. The HPLC diode array detector shall be of dual lamp design, using tungsten and deuterium lamps.
- mm. The HPLC diode array detector shall employ an electromechanical slit with programmable slit widths from 1 to 16 mm or better
- nn. The HPLC diode array detector shall cover the complete spectral range of 190-950 nm, and acquire the complete range in not more than 12.5 ms.
- oo. The HPLC diode array detector's UV lamp and flow cell must have RFID tags
- pp. Signal noise in the HPLC diode array detector shall be +/-1x10⁻⁵AU at 254 and 750 nm (bandwidth=4nm, 10 mm path, 2 sec response time, flow = 1 ml/min.).
- qq. The instrument shall come with a 10 year use guarantee, such that the vendor shall provide residual value credit towards the purchase of a replacement system should instrument support lapse, even in the event of technical obsolescence.

Triple Quadrupole GC-MS System, or approved substitution with the following specifications:

1. Agilent Technologies Model 7000B Triple Quadrupole GC-MS (GCQQQ) System, or approved substitution.

Shall be comprised of the following components:

- a. G7010AA Triple Quadrupole GC-MS/EI bundle.
 - i. MS/MS mainframe.
 - ii. EI source.
 - iii. Ion gauge.
 - iv. Mass Hunter workstation (software, CPU, monitor, printer).
 1. 1-year software support.

- b. G3391A Site preparation package.
 - c. G3440A 7890A series GC (custom) with multimode inlet, N₂ or air cooling, MSD interface and 3 channels of auxiliary EPC.
 - i. Includes LAN interface and 7683 interface.
 - ii. Provides 20-ramp oven programming.
 - iii. Provides 6 heated zones.
 - iv. Provides 2 analog outputs.
 - v. Provides keyboard and display pressure setpoints to 0.001 PSI (range 0-99 PSI).
 - d. G1472A Universal GC-MS PCT backflush kit.
 - i. Includes purged ultimate union, specialized tools, tubing and other parts and manual including setup, operation and troubleshooting.
 - e. G4513A 7693A Autoinjector.
 - i. Includes transfer turret, 16 sample turret, mounting post, parking post for GC and 10 ul syringe.
 - f. G4520A 7693 tray with heater/mixer/barcode.
- 2. Shall include Wiley 8th edition GC-MS spectral library with NIST 2008 spectra.
 - a. Includes 526,000 spectra, 350,000 chemical structures, 356,000 CAS RNs, NIST MS search program, and AMDIS search program.
 - 3. Shall include on-site installation, familiarization and training.
 - 4. Shall include on-site training course on QQQ operation.
 - 5. Shall include a minimum of 3 days of on-site chemical analysis application consulting.
 - 6. Shall meet or exceed the following performance specifications:
 - a. The mass spectrometer shall have a standard EI mode with available PCI and NCI modes.
 - b. The ion source shall be fabricated from non-coated inert material with a combination of repeller and extraction lenses and an operational temperature range from 106-350°C or better.
 - c. The ion source for EI shall be of dual filament design.
 - d. The mass spectrometer will generate an electron energy range of 10-300 eV or better.
 - e. The mass spectrometer shall have a mass range of 10-1050 m/z or better.

- f. The mass spectrometer shall provide unit mass resolution adjustable by tune from 0.7 to 2.5 daltons or better.
- g. The mass spectrometer shall have an electronic dynamic range $>10^6$.
- h. The mass spectrometer shall have an electronic scan rate up to 6250 amu/s or better.
- i. The mass spectrometer shall have a MRM speed of 500 transitions/sec or greater and a minimum MRM dwell of 1 msec or less.
- j. EI scan sensitivity must exceed 300:1 S/N at nominal m/z 272 ion from injection of 1 pg octafluoronaphthalene (OFN) scanning from 50-300 amu.
- k. EI MRM sensitivity must exceed 500:1 RMS S/N for the transition of m/z 272 to m/z 241 or 222 with autotune parameters and injection of 100 fg of octafluoronaphthalene.
- l. The mass spectrometer shall utilize two monolithic hyperbolic gold-coated quadrupole mass filters operating in a temperature range from 106-200°C or better with mass axis stability ± 0.10 u over 24 hrs (10-40°C).
- m. The mass spectrometer collision cell shall be a linear hexapole using nitrogen as the collision cell gas and helium quench gas, with a collision energy selectable up to at least 60 eV.
- n. The mass spectrometer detector shall be a triple axis HED-EM with extended life EM and dynamically ramped iris.
- o. The mass spectrometer shall have both autotune and manual tuning capabilities.
- p. The gas chromatograph shall have an oven temperature range from ambient + 4°C to 450°C or better, with at least 20 programmable ramps and 21 plateaus. Negative ramps must also be allowed.
- q. The gas chromatograph must have a multi-mode inlet for split, splitless and programmed temperature vaporization (PTV) injections.
- r. The gas chromatograph must have auto pressure regulation to at least 0.001 psi for the split/splitless inlet and septum purge.
- s. The gas chromatograph liquid autosampler shall include a vial turret with at least 16 vial capacity, fast injection capability, and an automated tray of at least 150 vial capacity with heater/mixer and bar-code reader.
- t. The gas chromatograph mainframe shall support at least 2 additional detectors in simultaneous operation with the mass spectrometer.
- u. The GCQQQ and LC-QTOF MS must both operate under the same software system.

- v. Shall provide single point data system method capability with full control of GC and mass spectrometer and communication between the two such that if either experiences a 'not ready' condition, error or leak, the system stops injecting sample.
- w. Instrument control software must provide injector programming capabilities allowing online sample derivatization.
- x. Software shall have data-dependant capabilities including dynamic selection of fragmentation energy, preferred charge states, and exclude/include mass lists.
- y. Software must allow compound based browsing with dynamic links to spectra and chromatograms.
- z. Molecular profiling software must take data from both GCQQQ and LC-QTOF and group data together to determine relationships among different groups.
- aa. Molecular profiling tools must include capabilities to find important chemical differences, determine significant abundance differences of compounds across groups, cluster data to find relationships and use a prediction model to assign a sample to a group.
- bb. Data mining tools shall include the ability to extract compound-specific spectral and chromatographic information via a find compounds algorithm.
- cc. The instrument shall come with a 10 year use guarantee, such that the vendor shall provide residual value credit towards the purchase of a replacement system should instrument support lapse, even in the event of technical obsolescence.

All questions pertaining to the Technical Specifications shall be directed to Tammy Tanaka, telephone (808) 933-2822 (Hilo).

Bidders are cautioned to review the Technical Specifications carefully and thoroughly. Objections to or requests for clarification of the specifications shall be made in writing in accordance with the General Provisions to the Office of Procurement and Real Property Management prior to the submittal of a bid. The submittal of a bid shall be considered as acceptance of the specifications as published.

SPECIAL PROVISIONS

1. SCOPE

The Furnishing, Delivery, and Installation of Accurate Mass Quadrupole Time-of-Flight (QTOF) LC-MS System and Triple Quadrupole GC-MS System for the for the College of Pharmacy, University of Hawaii at Hilo, shall be in accordance with the terms and conditions of IFB No. 10-0367 and the General Provisions dated August 2007 included by reference. Copies of the General Provisions are available at the Office of Procurement and Real Property Management, University of Hawaii, 1400 Lower Campus Road, Room 15, Honolulu, Hawaii 96822 or the General Provisions may be viewed at: <http://www.fmo.hawaii.edu/procure/doc/gp0807.pdf>

2. TECHNICAL REPRESENTATIVE OF THE PROCUREMENT OFFICER (TRPO)

The Technical Representative of the Procurement Officer is Tammy Tanaka, telephone (808) 933-2822 (Hilo).

3. DELIVERY AND INSTALLATION

Delivery and installation of the equipment shall be at University of Hawai'i at Hilo, College of Pharmacy, 924 Stainback Highway, Hilo, Hawai'i 96720. Prior to delivery and installation, the Contractor shall contact the Technical Representative to coordinate delivery and installation of the equipment.

4. MANUALS AND INSTRUCTIONS

The Contractor shall provide the University with operating and maintenance manuals of the equipment furnished under this contract.

5. WARRANTY

The equipment furnished shall be new and as specified. Used or refurbished equipment will not be accepted. The Contractor shall warrant that all workmanship and materials of equipment furnished under this contract shall be guaranteed for the Manufacturer's Standard Warranty from the date of acceptance. The Contractor shall replace and/or repair any defective workmanship and/or materials at no cost to the University during the period of warranty, provided such defects are not due to abuse or negligence on the part of the University.

6. PAYMENT

The Contractor shall be remunerated upon satisfactory delivery and installation, and submission of a properly executed original invoice and ONE (1) copy, indicating the contract number, to University of Hawai'i at Hilo, College of Pharmacy, 200 West Kawili Street, Hilo, Hawaii 96720-4091.

7. CAMPAIGN CONTRIBUTIONS BY STATE AND COUNTY CONTRACTORS

Contractors are hereby notified of the applicability of Section 11-205.5, HRS, which states that campaign contributions are prohibited from specified State or county government contractors during the term of the contract if the contractors are paid with funds appropriated by a legislative body. Further information is available from the Campaign Spending Commission at www.hawaii.gov/campaign or at (808) 586-0285.